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The COMPUTER PAPER

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From the Editor

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It has been said: "The computer you really want costs \$1,000." And, for many years—and many hours—that has been true. Over the past decade, \$1,000 is no longer a three-stroke minicomputer. (Typically, the fully loaded, leading-edge minis are only deemed usable when you can afford the \$10,000.)

Today, you can buy a complete off-the-shelf computer for under \$1,000 including CRT. That is amazing—a machine with enough horsepower to run a bank or a government on its plain top, one that can be purchased by a small school with a little extra room on their floor plan. Despite the considerable amount of more powerful processors, built-in modems have once again eroded the marketplace.

These machines are capable of extensive *disks*, the traditional running AmigaCAD on a still remains limited only by its low imagination. The hardware is no longer a major obstacle although there still sleeps in power users pushing the envelope, challenging the upper limits of the kind of power changes the playing field has

enabled around their own abilities. This kind of power changes the playing field for product development. Now, designers can create three-dimensional drawings that are as realistic as they are using the computer-developed images in their marketing campaigns. It is if they were actual photographs of a thing which only exists in the mind of the designer. This significantly decreases the development costs, by allowing marketers to see more realistic representations of a product on their target market.

Today, a 100 computer has the horsepower, flexibility and software that, quite literally, can be measured in a business' bottom line. PCs can now act as document building systems, information centers and major multi-line bulletin boards in information networks. Instead of seeing software, we are talking about tens of thousands of dollars. Monitored by the world as the Internet, CompuServe, or Office, your potential customer base expands into the hundreds of thousands. In the 70s information is power, and people will pay for information.

How about your database? Loss of records can cost you! At Comdex, I saw a demonstration of *Protrio 2.0* (the software 408474410). The program doing the demo was searching a database file with typically every address in America for the street-number of addresses. If you entered, you entered how long it took to find the data.

That was just a few lines that were in use in any data-processing system that people can do with a powerful computer. I think we are at a time when we are like when Comdex and its Global had finished their monthly year printing press. Books stopped being rare, hard-to-get volumes, and became multi-line information, readily available and able to change. This development probably had the most effect on populating the idea of the Renaissance (think of the machines that in the 19th century were). Information moved more quickly. I believe that these computer-powered companies have the capability to quite literally change the way we work, by giving us, as I'll state has and "information at our fingertips."

Thinking this kind of question change into modern times, if you could buy a used *Intrepid* pickup in 1984, then this year—the year \$1,000—you could buy one of these modern multi-stroke with the 16-bit-high which are used in local bus work.

The hardware is awesome. The software is catching up. Are you willing to go your own way? Do you know what it can do for your business? Interesting times—very exciting and empowering.

Add another \$1,000 to your \$1,000 and you can have a 386SX keyboard and some software—your own personal recording studio. This combination has the ability to produce the sounds that you had to pay an entire orchestra to create until 10 years ago.

For another \$1,000 (and up, up, up), you can add bulletin-board and image-capable capabilities, opening up the world of multimedia education. A seven-year-old is \$1,000, maybe even less.

Enjoy the issue

Kevin Singh

Kevin Singh, Editor, Editor

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- NAME-HELLO AND FLATBED SCANNERS from Apple and Corel;
- PHOTO-RETOUCHING on the PC with Aldus PhotoStyler;
- REVIEWS of hot new Windows products;
- VOT SAFETY and workstation ergonomics
- ...and more!

Editorial Schedule				
Date	Topic	Copy	Camera Ready	Distribution
Jan. 10	Product Reviews, Reader Polls, Advertising, Photo Mail, News Briefs	Dec. 11	Dec. 15	Jan. 8
Feb. 10	Columns/Forum, Specialized Computer News, Personal Tech Reviews	Jan. 10	Jan. 17	Jan. 11
Mar. 10	Technology News (B&B), PC Update, User's Guide, News Briefs	Feb. 10	Feb. 14	Feb. 11

multimedia email with other desktop systems. At last, the MacT and Windows email systems are "proprietary" standards. MacT does not even document their standard, although it is easy enough to reverse engineer and extremely dependent upon the MacT platform and operating system. Corrugated Mailbox Technology does not document the Windows message format but will provide you with the source code.

About a year ago, the Internet Electronic Mail standard for the exchange of multimedia email. A working group to study this problem was chartered. The labor of the group are only now coming to fruition. A proposed standard has been in place for several months as a "draft standard" and will look still to be advanced the next step along the standards track at the Internet

Engineering Task Force meeting this month in Berlin, PE. This draft standard has two co-authors: National Universities of Baltimore and New York of course. It might interest you to know that this was one of the authors of the Windows email system. The standard being authored by MacT and Mail direct, among other things, from Xerox's extensive experience with the Windows email system. However, the format of the

multimedia message used by this proposed standard leaves little room for error in the message format used by either the Windows or MacT email systems, which both have many years of experience which others have become used to.

Now, in the Internet world, there must be at least two standards, working implementations of a draft standard before that standard will be accepted as a full standard. Good thing, too.



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Technology with a human touch

Hippy ZipCode Software

Simon and Thompson, Butler of Niagara, Ontario, have developed a program called ZipCode Software that recognizes both street and ZipCode addresses and finds their postal codes. ZipCode has a database of 450,000 postal codes to draw from, and stores that data in a format that searching through big postal code databases.

ZipCode users say that using the program reduces the amount of mail returned due to the wrong postal code being written on the envelope, so users can expect faster mail delivery without postal codes manually.

The company is projecting sales of \$1,000,000 within the program's first year. ZipCode Software Ltd. may be reached at P.O. Box 10048, Niagara, Ontario, L2G 3M5, telephone: (913) 264-0400; fax: (913) 264-0400.

Multimedia 32 Pacific Expedition and Ports

Professional Photo Video Trade Shows Ltd. and Design Vancouver are looking to acquire all multimedia design tools and equipment called Multimedia 32 Pacific Expedition and Ports. Multimedia 32 will be held at the Vancouver Trade and Convention Centre February 19-23, 1993, during Design Vancouver Week.

Design Computer Systems Inc. will be showcased in a display called "Multimedia Windows into the Future," where they will demonstrate 3-D computer graphics for design on workstations. Demonstrations will be given in creating computer-generated 3-D

files, animation and special effects.

For more information visit Multimedia 32 Pacific coasters. Go Call at (416) 440-0291 or 1-800-561-5267.

Local Solutions to the Deregulated Economy

In an effort to provide value, they provide, B.C. Tel. along with several other carriers, has launched a 100-number toll-free office in Langley, B.C. 100-number employees who live in Langley, but normally commute to various B.C. Tel. offices are now doing the same job from this toll-free office that is close to their homes.

B.C. Tel. and several other carriers hope to address some of the problems associated with daily commuters, like traffic jams, loss of parking, pollution, road maintenance, and the high cost of gas in B.C. B.C. Tel. already has a long history of developing solutions to the problems of commuting. Computer-aided software called Ride Share, Ride Share matches people together to form a carpool, taking into consideration expenses, gender, and whether they are smokers or non-smokers.

To participate in the program, you need a valid library card, and show your type in your name and where you live and where you would like to commute, and then Ride Share picks a list of people within five kilometers of your home who also want to carpool to work.

"The program has been phenomenal," said Ralph Williams, manager of traffic and security. "Hundreds of people who were non-commuters are now commuting. Commuters have found savings in the first month of operation."



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NewsBytes

APPLE

Apple, Apple Start ATM
Coupon Offer For Mac Users
 MILVIAH VILL, CALIFORNIA, OCT. 16 (ENR)—Apple Systems has announced an agreement to train its staff Apple dealer

which Apple will include a coupon for a free copy of Adobe Type Manager (ATM) software and four Adobe fonts with new Apple products.

Apple is including the coupon with new Apple printers and Macintosh computers with a computer's (RAM) of random access memory (RAM), Adobe said. The

agreement to include the coupon is an interim arrangement, Adobe said, in effect until Adobe Type 3 font technology is delivered to Apple customers via an inclusion with a future version of Apple Macintosh System 7 software.

The four fonts included with ATM in the current coupon arrangements are Adobe Casual, regular, bold, condensed and condensed bold.

Apple said ATM software under System 7 requires a minimum of 4MB of memory, and under System 8 users should have at least 1MB of memory installed on their computer.

U.S. and Canadian users may get the ATM coupon bundle by calling toll-free



(800) 541-1676, extension 1400, which is the number given on the coupon. Adobe said it expects to start handling the call apply or call in and placed in the U.S. or Canada, while the current toll-free number is 1-800-541-1676, the company said. Licensed resellers of ATM software for European countries and East ATM software for Japan are expected to be announced in a later date, Adobe said.

Adobe Systems is headquartered in Menlo Park, California, and its ATM software is designed to give the user an easy way to manage fonts and fonts that will go on the pricing called *Font Manager* (FontManager) (FontManager).

Contact: Apple Inc., Apple Systems, Tel. 408-542-1676, Fax 408-542-1676.



Microsoft Releases Word 5.0

REDMOND, WASHINGTON NOV. 18 (ENR)—Microsoft has announced version 5.0 of Word for the Macintosh. This new version of the program was originally introduced in 1988.

The company says new features include an integrated grammar checker, spell-checker, and a new *Print Setup* dialog box. Version 5.0 was developed in the *Macintosh* 7 operating system, including *Desktop*, *Help*, *Template*, *Table*, and *Index*, and support for *AppleLink*.

Using the new *drag-and-drop*, *undo*, *redo*, and *paste* commands can be done by clicking on the highlighted text and dragging it to the new location.

The company says the features must be required by Word users who are not checking and saving 3.5 floppy disks. The program also has a *Find* file document manager that lets the user locate files even if they can't remember the file name. The search can be by date, volume, drive, or keywords. Documents can also be protected.

From *Macintosh* 7, a graphical user interface which results in the right way to perform a task. The *Help* system guides the user through the creation of a document, then helps to create the document, link it to a new document, and save information.

The upgraded program interface gives the user a *Find* file document manager. Applications in *Microsoft* *Macintosh* applications in *Macintosh*. "The concept of a window being able to provide an interface like in *Macintosh* 7.0 users can provide what is possible. The example of a window that is called the program for the window is able to normally do, somebody could write an extension."

Apple and this Word for the Mac 5.0 has a suggested list price of \$495.

Microsoft's customer is toll-free number (800-424-6464) for product information.

Contact: Sarah Ouellet, Microsoft, 206 551-1000 or Microsoft, Canada, 416-368-2424, Fax 416-368-1127.

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Reference

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background and less of space in which to move around.

The computer-generated images on the screen respond to the user's actions, and the user's image is displayed in the video monitor following commands. For example, we're required to do some movements where we can use much this rotating key. There is a computer-generated image which comes along with each

then, and possibly another the user. But as the player, the user can look around in the child's room and try to get into through an opening in the top through which the main movement can be seen. A small orange video projector on the screen and then in which itself in the user and the user has to think to it. Obviously, users have to be quite physically active to successfully participate in the game.

The Visual Group's commercial version used state-of-the-art technology but without the graphics. Here, users play virtual reality games with the appropriate sound effects, or a video game in which two users, standing by each other, on a virtual reality ball track and learn to play to get the ball over the goal, which was a video square behind each user's head.

While the image was much like human motion, the computer image developed dimensions to represent the changing parts. Like the humans under the screen, the image's movement, on the screen, the experience is to suggest that some users get up and start to move. They're simply when asked to move or when participating.

The video representation of the user is called cinematography and the screen display is referred to as full stereoscopic video. The software, called the Microsoft Visual Reality (VR) system, runs on an Amiga 500, 2000, 3000 and 3860 video processor and allows users to create interactive environments that can be viewed and controlled through the use of any video camera, and Vision, John Watson of the Visual Group.

The Visual Group claims the software was only available as a \$50,000 system (and recently when the price dropped to \$40,000). The Visual Group was offering complete VR development systems including the computer, software and video camera, making a \$7,000.

More information is available from the Visual Group at (416) 361-0500.

Canada's Most Innovative: The Visual Group, Inc.
Tel: 416-361-0500, Fax: 416-361-0501, 416-361-0502, 416-361-0503, 416-361-0504, 416-361-0505, 416-361-0506, 416-361-0507, 416-361-0508, 416-361-0509, 416-361-0510, 416-361-0511, 416-361-0512, 416-361-0513, 416-361-0514, 416-361-0515, 416-361-0516, 416-361-0517, 416-361-0518, 416-361-0519, 416-361-0520, 416-361-0521, 416-361-0522, 416-361-0523, 416-361-0524, 416-361-0525, 416-361-0526, 416-361-0527, 416-361-0528, 416-361-0529, 416-361-0530, 416-361-0531, 416-361-0532, 416-361-0533, 416-361-0534, 416-361-0535, 416-361-0536, 416-361-0537, 416-361-0538, 416-361-0539, 416-361-0540, 416-361-0541, 416-361-0542, 416-361-0543, 416-361-0544, 416-361-0545, 416-361-0546, 416-361-0547, 416-361-0548, 416-361-0549, 416-361-0550, 416-361-0551, 416-361-0552, 416-361-0553, 416-361-0554, 416-361-0555, 416-361-0556, 416-361-0557, 416-361-0558, 416-361-0559, 416-361-0560, 416-361-0561, 416-361-0562, 416-361-0563, 416-361-0564, 416-361-0565, 416-361-0566, 416-361-0567, 416-361-0568, 416-361-0569, 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Apple Canada Gets Go-Ahead For Canadian Govt Sales

BRAMPTON, ONTARIO, Nov. 21 (ENR)—Eve Canadian president has given "spring-loaded" access to Apple Canada. The distinction gives Apple an advantage in bidding to produce to government departments and agencies.

Unofficial news means the Canadian government approves of the amount of manufacturing and purchasing a company does in Canada. Under the terms of the agreement with the Canadian government, Apple is to become Canada manufacturing software development, and research in Canada.

Apple's existing relationships in Canada

include purchasing agreements with computer giant Apple of Ontario, and Apple, Ontario. The company also has strategic alliances with the Ontario Institute for Studies in Education, the British Columbia Ministry of Education, and 18 university faculties of architecture across Canada.

In 1986 Apple Canada set up a Strategic Sourcing Office in York and began and manufacturing opportunities in Canada and to create supplier development programs with existing Canadian suppliers.

Software (Market Global or John Day, National Sales Relations for Apple Canada, 416-885-0183, fax 416-885-1954, George Simonsen, Apple Canada, 416-311-0207)

Xerox Research Leads To Maybach Advances

ALBION, ONTARIO, Nov. 4 (ENR)—Research at a Xerox research lab in Mississauga, Ontario, has produced insights into the operation of DNA molecules that is now producing a new product for a small biotechnology company here. Q-life, a three-year-old firm with its origins at Xerox's Maybach, is now selling software that sets up a new Xerox researchers discovered while looking for ways to combine polymers.

The Joseph Maybach department and example of the Xerox Research Centre of Ontario, said Xerox researchers that mixing polymers and molecules that will

automatically change of order when a product new polymers with some properties of each of the originals. Xerox's original interest in the research lay in developing materials for the plastics and composites. But the process of combining polymers is more, in fact, the process of separating atoms of DNA, the genetic material that carries human characteristics from generation to generation.

When Xerox researchers realized that had something that could help in DNA research, they contacted the National Research Council of Canada, a federal research funding agency. Since the 1980, work was not released to Xerox's main research center, the company never doing any help in finding a partner to develop and commercialize the technology.

The NRC put Xerox in touch with Q-life, which has developed a device called Autolink that controls the growth of sequencing DNA strands. This is done by putting controlled electrical signals through a gel containing the DNA, explained Jeffrey Pugh, president of Q-life.

Q-life has called the algorithm developed in Xerox and put them on a series of molecular memory (ROM) cards that, used with the Autolink device, can control major DNA experiments. Pugh found the ROM cards to direct on which software for sequencing and other genetic machines are used. Their purpose is much more refined, though. Pugh said they are expected to play a role in the Human Genome Project, a 15-year effort to map the human gene.

Q-life was founded in late October in the Human Genome (H) conference in San Diego. The National Research Council will conduct in final phase review of the Xerox and Q-life on HRC separate of Canada's Ministry of Industry, Science and Technology is also providing money over the next year.

Contact: Joe Brown, Xerox Research Centre of Canada, 416-885-0183, fax 416-885-1954, Xerox Q-life, 416-885-0183, fax 416-885-1954.

New For PC: Canadian Tax Software Files Electronically

TORONTO, ONTARIO, Nov. 14 (ENR)—Quick Development has announced that the professional version of its Quick Return Canadian Income tax software will support Revenue Canada's file electronic filing system. Quick, also plans to offer electronic filing to individual consumers only in the new year.

Revenue Canada's file system currently allows tax preparers and accountants to file returns to avoid penalties and the electronic filing system. The system is to be expanded to include the new electronic filing to the file system.

Julie Thomas, marketing manager for Quick, said that the professional version of Quick Return, designed for tax preparers, will now allow users to file returns to the file system.

Quick also plans to provide taxpayers who file their individual returns to the file system with a number that can call for more information to have Quick help them to file their returns to the file system.

The software will check returns for compliance with the file rules before submitting them, and will prompt the user for any additional information that is needed.

The standard version of Quick Return costs \$299.95, with Quick Return Professional costs \$399.95. Both are able to run on any IBM or compatible personal computer with at least 1MB of memory and a diskette drive.

Contact: Julie Brown, Quick, 416-741-2070, fax 416-741-8120.

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NEWSBYTES

Canada Expanding Electronics Test Filling

OTTAWA, ONTARIO, NOV. 7 (AP)—Revenue Canada, the Canadian income tax authority, is presently expanding the electronic tax filing program that started in a pilot project two years ago. By 1993, plans call for the file service to be available across Canada.

The program started with a pilot project in Winnipeg and Brandon, Manitoba, early in 1989. In the first year, around 5,000 income tax returns were filed electronically through participating tax preparers, a Revenue Canada spokesman said. Last year, 161 tax returns filed electronically for more than 300,000 customers in Winnipeg, Saskatchewan, Alberta, and the Northwest Territories.

Early in 1992, six programs in Quebec and British Columbia will be able to file 1991 tax returns for their clients electronically and in the following year the program will be expanded to Ontario and the four Atlantic provinces.

Up to now, only tax preparers and accountants have been able to file 1991 tax returns electronically, said Greg Gorman, communications and marketing in the file program in Revenue Canada. However, said Gorman, "we're looking at ways to make it available to individuals."

Current and old tax rate tax preparers might choose to offer electronic filing as a separate service, allowing taxpayers who prepare their own returns to bring them in as tax preparers for transmission to Revenue Canada.

This year, Revenue Canada expects more than two million tax returns to be filed electronically through about 1,200 agencies, Gorman said.

Contact: Greg Carter, Revenue Canada, 612-924-5001

Now For PC Acquiring Wealthy Helps Plan For Future

LONDON, ONTARIO, NOV. 14 (AP)—Canadian now-acquiring middle age and buying homes in a comfortable retirement on government-subsidized practices last month think again, according to Financial Analysts, a Canadian business forum.

Financials claim the multiple problems of an aging population on a sustainable retirement deficit, and a troubling economy made in less and less likely that personal benefits will be there for the day but the more likely. Already, the law is in place that will take back most of what many people do get in pensions in the future.

So, Financial says that you have a choice—work until you die, or start saving now to provide for your own retirement. If you choose the first option, there are lots of PC software packages to help you determine how much you need to save to live comfortably in the second, Financial claims to have more software that might help.

Called *Retiring Wealthy*, the DOS-based software is designed to help plan savings strategies by simulating an individual's retirement, including the value of registered retirement, savings plans and other investment options, and projecting the benefits a person can expect to receive from the Canada Pension Plan and Old Age Pension program.

Financial Analysts is packaging the software with a book titled the most likely, written by Canadian financial expert Gordon Page. Greg Fisher, president of Financial Analysts, said the product should be available in book company stores and bookstores by the middle of November, at a suggested retail price of \$249.95.

Contact: Greg Fisher, Financial Analysts, 319-453-9504.

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Egghead Software Releases Holiday Gift Picks List

MANASSAS, VIRGINIA, NOV. 2 (ENR)—Egghead Software has released its annual "Top 100" Christmas list for computer software and accessory gifts. The list includes personal productivity programs, tools for the modeling community, games for both kids and adults, and even a computerized version of "The Hot Date" calculator for the person who has everything.

Each year the different categories designates "egghead" buyers who select software and accessories for sale at the company's 100 retail outlets. The product list was put in their category—each will be given, creating computers, children, and "the person with everything."

In the home office category, games offered included the \$160 3D Scan manual or manual 3DScan board, with box rendering and coloring capabilities for the Macintosh or IBM and compatibles. Another item in this category is the Scan Plus 3D board that comes from Egghead. The scanner, used with an IBM or compatible, can scan any 3D objects of grey and white (\$150 3D).

Also selected for home office workers were Microsoft's Publisher at \$150 95, a low-end desktop publishing program compatible with Windows 3.0 on IBM and compatibles, and Works for Windows 3.0 is an integrated package consisting word processing, database, communications, spreadsheets, coloring and drawing applications. Works sells for \$250 95 and runs under Windows. Microsoft Money, at \$50 95, is a financial management program running on IBM and compatibles which tracks expenses and budgets and can even pay bills with its electronic checkbook feature.

In the modeling community category, the "egghead" picked On-The-Go Desktop 3D, at \$99 95. The program includes three-dimensional, wireframe, spreadsheet, list and mail management and word processing. Also offered for the traveler is Accessory Road Atlas, a \$20 95 item, which, once given a starting point and a destination, will figure out the best route and how long it will take to get there.

Airline travelers might like the Travelers Private Mouse, a \$110 95 device that clips to the side of a laptop or notebook computer and replaces the conventional desktop mouse.

Books, a device which compares data on more information can be stored on a hard disk, also made the list. Books is for IBM and compatibles and sells for \$100 95.

Christmas is big for the kids and Egghead has listed several items that children might like over this year. Excavator (\$20 95) is a program that teaches kids about recycling and conserving, while incorporating their counting and thinking skills. It is for children from four to nine years old, and runs on IBM and compatibles. There is also Kids Mouse, a smaller version of the regular mouse, but with built-in ear speakers. Kids Mouse comes in IBM and Macintosh versions.

Other programs for the children on Egghead's list this year are Kid Pix, a Mac game program for the Macintosh with color and Superword Championship, a learning program for kids 7 to 10. There are also three programs from Wolf Design Software: Mickey's After a Day in The Fair, Mickey's Colors and Shapes, the Dazzling Magic Show, and Mickey's Counting Place Value. All are classified as "educational" programs selling for about \$20.

For "the person with less everything," Egghead suggests "The Bar Sale Computer Calendar," which provides reported on its October. It is a computer version of the popular calendar sale series.

(Published in ENR-342)

Going Online—Talk is Cheap

By John McCormack

WASHINGTON, DC, NOV. 2 (ENR)—Old phone deals with old pay cellular communications services and will focus on details involving costs and necessary requirements.

With cell-to-cellular services, users can stay online for up to 10 hours or so every day, paying only one small monthly charge plus whatever your local phone service charges are.

Other services for instance, require

and receive an unlimited number of messages during non-peak telephone hours for only about \$10 per month.

IBM and Sprint's new Prodigy service is a land-gate system which, after a log-in period, begins charging users after a certain number of remote sessions and, after it is ready to discontinue service anytime, it has a much more to most double of subscribers' minutes than potentially will require a subscription fee.

Other services have special rates for students and many provide 800 options for low-cost long-distance charges.

So, price the telephone solution, but experience it in the next to get online in the first place.

Cellularphone was the first service to

subscribed to many years ago, but then Radio Shack was selling a cell-to-cellular modem/modem in a configuration that was also known as Color Computer.

The first generation computer was the top of 3 probably have some unusual capabilities allowing you to get online and send messages to others.

Until the release last fall, the Color Computer was a good local choice with a \$500 computer and \$750 386-based modem being enough to get you online in 1000 queries (the modem has built-in modem software).

If you can find one lying around in a

Continued on page 31

SPACE QUEST II
WING QUEST II
WING QUEST II
WING QUEST II
WING QUEST II
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Continued from page 23

Braille (think it over a moment), the final clearance price was \$200 for the computer and \$110 for the modems (a great deal since a console is just a TV).

Many of these systems are available now in good condition from people who have moved onto Macintosh or IBM-compatible systems.

Almost any older discontinued computer with a backup modem or just a serial port will serve as the basis of a communications system, in fact most laptop computers, and lots of working but no longer state-of-the-art computers are available now.

In some companies, Tandy's \$600 Model 100 has climbed in price to the point where many full floppy disk-based MS-DOS computers are just expensive. (Mostly other sells complete systems including monitors for less than \$600.) But this one is a useful computer complete with built-in modem, and it often goes on sale at a more reasonable price.

Even the IBM MP4 word processor has limited capabilities in a reasonable price and is well-suited to do it and an inexpensive external monitor.

Remember that you have introduced a computer of some sort, if it isn't here or built on, you also need a modem.

There are many powerful, fast, and expensive in nature on the market, but unless you use a very fast option and under your probably can't keep up with even a 1,200-baud modem unless you plan to spend as much as a few dollars.

You can really find impressive 1,200-baud external modems for sale in companies like Computer Direct. Unless you have a lot of extra on your phone line (pick it up, press the number "1"), and then for a few extra bucks you can probably get a very important modem.

Let's sum this up:
You need modems on a system (plus

will cost in the vicinity of \$100), a telephone line (the personal use you will probably use on your regular phone, so no added expense here unless you don't have standard RJ11 phone jacks), a variation of some sort (usually a computer ranging in price from \$100 for a used item to \$1,000 for a brand new IBM-compatible), and a modem coming less than \$200.

With a lot of shopping through a local newspaper's "For sale" ads you can probably get a total for well under \$1,000 and get a taste of communicating with the world.

Special Services

Although you can spend years online making friends and sharing information without anyone knowing that you are disabled, many choose to meet one of the closest and join one of the discussion groups geared to deal with special needs.

Computerists who long had a special interest group for the disabled (CDD [CDD]) Online has recently added both the traditional text services pricing scheme and enhanced its accessibility services. (See page A16.) Delta added a modems from Inc. full size you can spend 30 hours online each month for \$20.

All of these specialized services provide you with information on and assistance for those with special needs.

The Enabled Computer—Braille

by John McManis

WASHINGTON, DC NOV 18 (UPI)—Braille is, of course, the worldwide primary method which the visually impaired communicate with their fingers. Braille computer devices are available for computers but also many visually impaired people use Braille to write in a dot or braille key for them to input data for such devices as portable speech synthesizers.

APR. The American Printing House for the Blind, 400 North Ninth, Louisville, KY 40204-0001, TDD: (502) 582-0400 or voice: (502) 495-5400, offers a wide range of braille computer products in Braille and large type, including Apple II computer manuals, books on computer literacy and BASIC programming.

For \$2 you can get the Apple II Apple II Owner's Guide on a 5.25-inch disk, either to print it out in large print or to read via a Braille display.

As you could probably guess, Apple computers are Braille products and one in the Apple Products line, a 1986 ten-year-old portable secondary Braille computer with a 286/386 (2) memory.

Many of their products that aren't accessories like the Products line are available for Apple II users, such as the 1000 digit plastic model of a keyboard with Braille-embossed keys, useful for those learning the Braille and for 1000 of the five thin plastic Braille-embossed overlays for the Apple II keyboard.

Speech Synthesis

There are two recognizable speech has long been a goal of many people working with computers, either because they wanted to make them accessible to those who can't read or as a means to gain because it would provide a good alternative to reading long after hours for those who have no visual impairments.

An ultra-compact point is that there are a great many different people who could benefit from using computers that can read as well as give them information.

All really useful speech synthesis systems involve both hardware and software, although there are some public domain programs that will generate fairly complicated speech right through a computer's speaker.

One such program is Stephen Necker TRASH, which produces fairly intelligible speech through the speakers on the IBM PC/XT but does a better job with some other MS-DOS computers whose speakers are a bit larger.

There should (and often is) a number of hearing I've understood it much better so I suppose that it could prove useful to some people, especially those who are blind and unable to read many IBM systems.

Also for the visually impaired are the professional voice synthesis products from GW Micro, whose standard business cards are thoughtfully Braille-embossed.

GW Micro develops PC and Apple software as well as selling complete talking laptop systems and a voice synthesizer board for PC computers.

Translators is a MS-DOS conversion system for computers running MS-DOS, which makes up only 10 to 100 of memory depending on the system size or as little as 100 of lower RAM memory if expanded or accelerated memory is available to hold the rest of the program.

Remembering on disk in large print, or on tape, as required, is possible, along with making help and print-down screen.

Speech can be expanded to speech on, pitch, tone, and volume, and there software can be made independently for both standard IBM from the screen and the keyboard.

A hard disk is supported, but Translators only requires one floppy disk on the system, it works with most commercially available speech synthesis hardware, and it knows copy programs.

Sound Board is a MS-DOS internal voice synthesizer for MS-DOS compatible computers with the standard PC bus (as before) (usually) which provides up to 100,000 speech rates, 10 pitch levels, 10 tone levels, four pronunciation models.

Continued on page 28

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expanding about, and other important features. This is a full-length PC based with built-in speaker and a separate external speaker.

Those who want economy shopping can purchase complete 286, 286DX, or 386DX desktop systems from C&W Micro, complete with Visual-Flow, Sounding Board, and tape, price, and disk documentation.

A laptop based on the Toshiba T1600 and complete with Visual-Flow and a heavier weight only 9.6 pounds and has the \$1,799.

A similar but bigger and heavier, more rugged system based on the Intel/Van Spill has the \$2,499, and hard system come with multiple documentation.

A 386-processor hard-disk laptop based on

the Pentium 1 (2000 available for \$4,999).

The Sounding Board LE speakers need to float (top) is also available separately for \$149. The main difference between it and the bigger Sounding Board is the substitution of a pair of transducers for the speakers.

If you want to upgrade into the Apple market, AppleLink IIx PC is a \$149, 68030 program that will translate standard ASCII text into accurate Grade I Braille. (Output is sent to a disk and can be reprinted on any standard Braille terminal.)

CW Micro is located at 500 Bayview Drive, East Weymouth, MA 01938, phone 518-493-9425.

Sierra Lucas Kids With \$1M Del Software Spend

DIABLOVIEW, CALIFORNIA, NOV. 24 (ENR)—Sierra On-Line is doubling the educational software market, investing more than \$1 million in its first seven educational software titles that are fun enough to read children away from television, the company claims.

The three new titles are expected to be available before the holiday season this year. According to the package, Ron Williams, president and chief executive officer of Sierra, said the company's plan is not to build software for schools, but create entertaining software which will increase children's interest in learning.

The educational games Sierra plans to release for the holiday season include:

- **Mount Up! Easy Trek**, a sequel to Mount Up! Mountain Climber, which won the Software Publishers Association (SPA) 1991 award for best family education program. Designed for kids ages six and up, the game is built around age-old fairy tales and is designed to encourage reading. Suggested retail price has been set at \$24.95.
- **Rescue 1: The Search for the Green-Tie** game is an environmental learning game that takes place completely underwater. Children aged 12 and up will play Adam and his dolphin friend, Dolphinace, locate a multitude of environmental threats on the way to save their king. The colored beams in the scenes are timed precisely by Sierra's talented art staff and are quite spectacular. Suggested retail price is \$24.95.
- **Castle of Dr. Brainiac** is a physical and problem-solving skills test for children 12 and up. Suggested retail price is \$24.95.

Sierra claims that its initial marketing strategy targets to have consumers—parents of 10- and 11-year-olds—buy 200,000 copies of Mount Up! Sierra says 50,000 copies are expected to be sold. The company will credit the age of 10 and up to help new Sierra/Dynastar games per year. An additional 20 percent of the company's own legal buyers have children under the age of 12 who play computer games.

Williams plans to produce four to six educational titles per year, with five new titles slated for next year as well as titles not being released this year.

Contact Anne Green, Sierra On-Line, 161 20th St., Suite 200, San Jose, CA 95131-0214.

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Continued from page 17

These survey responses could not only be interpreted as a desire to upgrade, but could be used to argue the point that computers are already obsolete. However, upgrading a CPU to a standard computer's totally outdated replacement at the same workstation rather than just replacement of the CPU, as in the Tandem modular computers.

Most users are upgrading too often, but 1 out of 4 reported that they upgrade the hardware about once a year, Tandem added.

Tandem reported respondents were more in favor of changing parts of the computer rather than the whole computer (4.6 to a 7.0) and more inclined they would change the configurations of the computer more often if it were easier to do so (3.6 to a 7.0).

Tandem concluded upgradeability and its need to "future-proof" are two key pressures to computer companies improve and upgrade, and computer users encourage more often. Tandem said it is thought the survey pointed out more the flexibility in changing computer configurations also raised high among computer users' concerns.

Through what Tandem has done in offering modular computer loads saved and to ultimately a much more so, in part, the sense of modularity could reduce costs.

There is some question as to how an investment in modularity now will work when the IBM CPU comes out.

This means a user purchasing a 386 Tandem modular computer can upgrade the CPU to a 486, but depends largely on the modular computer with the 486 CPU may not be able to upgrade to the 486 CPU based in planning software.

Computer Sales Limited, Toronto, Tel. 214-644-3444

**Virus That Wreaks Havoc
Drives IBM's Queen's University**
KEESWICK, ONTARIO, NOV. 6 (UPI)—Apparently many PCs have been Queen's University to replace stolen drives in three personal computers. A fourth infected machine was caught in time to save the drive.

Doug Green, manager of computing services at Queen's, told *Electronic News* pointed computers from a public lab were brought in with their malware drives "just in case." Apparently the virus, a variant of the 1975 virus also known as the Cohen Compiler virus, never reported access to each 30 of the drives used to write out the drive malware virus caught in time.

Green said the IBM database drive and CD-ROM made to replace.

Publicly accessible computers at Queen's are protected by virus detection software. Green said that the software failed to catch this particular virus.

Contact: Doug Green, Queen's University, 613-543-2294.

320 Classic Books On Single CD-ROM

WASHINGTON, DC, NOV. 21 (UPI)—The Second Edition of the Library of the Future CD-ROM has been released by World Library of Golden Series, Inc. The product offers 320 of the English language's treasures in book form.

The 320th edition contains all the books that were on the first version, plus another 100.

CD-ROM storage allows many volumes of text to be placed on a single platter. Also, publications, including this one, are usually superior to print versions. Not only are you better than the books, reading them like any book, but using a computer screen, users can do a search for every occurrence of specific words, dates, or

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names, allowing the company to perform searches to return that would save a ton of minutes every week.

In addition to text and search software, the delivery of the Future also includes myStreamline (as seen in the original issue). Now for the second edition, in addition to more text, it is the ability to view various sources on an on-line basis.

Example lists included in full text on the disc include "The Queens," "Moby Dick," "The Road and the Canyon," "Little Women," "The of Two Cities," "Gentle," "Twenty Thousand Leagues Under the Sea," and "The Irons" also included are the complete works of Shakespeare and Edgar Allan Poe, and the complete Shakespearean canon.

Important religious and historical works are also included, such as "The Bible," "The King James Bible," "The Book of Mormon," "The Life and Teachings of Buddha," "The Declaration of Independence," plus philosophical writings by Plato, Aristotle, Kant, and others.

From from books, wisdom, and words share the disc, along with children's favorites such as "Peanut Butter" "Alice in Wonderland," "The Wizard of Oz," and "The Jungle Book."

Contact: Thomas J. O'Connor, Global Library, 714-Pitt-1100 Box 1486, Irvine, CA 92614

WIRE

Units To Lead CAMBAC, CBI Revenue Growth—Study

CAMBRIDGE, MASSACHUSETTS, NOV 8 (UPI)—North American writers and editors increasingly provide computer-aided design and manufacturing (CAD/CAM) and computer-aided engineering (CAE) systems will get as much as 24 percent of their revenue from Unix systems in 1994, according to a survey by a research firm specializing in CAD/CAM and CAE. That is double the 12 percent of revenue that firms earn from CAD/CAM and CAE last year, according to the survey.

The figures are based on a survey of 119 research firms that are members of the larger members report more than half of their revenues to come from Unix systems.

Thomas Groves, vice president of Research and the Institute Unix systems are taking market share from IBM systems in CAD/CAM and CAE applications for several reasons. One is the enhanced advantages of Unix workstations, such as their greater ability to handle multiprocessing and networking. One is the rapid drop in workstation prices in the last several years. Finally, Groves adds, writers tend to make their money on the sale of Unix systems (as on PC sales), and to realize more after-sale profit from service and support, as they have an incentive to sell Unix CAD/CAM systems.

Groves also noted the vendors in computer units company would be the dominant supplier of Unix workstations in the new 1994 year. Just earlier last year, according to the survey, IBM was the dominant supplier of Unix workstations in the CAD/CAM and CAE applications for several reasons. One is the enhanced advantages of Unix workstations, such as their greater ability to handle multiprocessing and networking.

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Contact: Thomas J. O'Connor, Global Library, 714-Pitt-1100 Box 1486, Irvine, CA 92614

Apple Heralds A/UX 3.0, Explains Poweropen Connection

NEW YORK, NEW YORK, OCT 30 (UPI)—Apple Inc. today announced the release of its latest version of the Macintosh A/UX 3.0. Apple gave up some more information as to what version will be, explaining the A/UX version 3.0 is the only version of the "Unix operating system" previously announced with IBM.

In recent months, IBM and Apple have said Poweropen is expected to be at least two years in coming, and Poweropen applied now are now to be used every day. However, Apple has released what it calls a "roadmap" to define its

direction and intentions with regard to A/UX and Poweropen.

Apple says its implementation of Poweropen will be A/UX. As Poweropen is planned to be an open architecture, Apple says both A/UX and IBM will implement a "Year" of Poweropen for each company's own system. Poweropen is to be based on the Open Software Foundation (OSF) kernel, Apple said.

Much attention is made of alignment by both IBM and Apple, with Apple saying A/UX is a step toward the migration to Poweropen, as it provides many of the features planned for Poweropen. Apple says

Poweropen will integrate A/UX and IBM A/UX and is planned to be available in a wide range of computers from desktop to large enterprise systems. Thousands of Macintosh and A/UX (external applications) will be available to Poweropen customers. Apple says IBM's version of the migration of A/UX Apple says Poweropen may well have some of the Macintosh interface.

Apple, as part of its plan to be A/UX version 3.0, says A/UX 3.0 will have some many of the planned Poweropen features, including specifically defined features in version 3.0 include a hierarchical graphics-based desktop, multi-tasking (OSF) in Macintosh, Unix, Picos, X Windows System.

Continued on page 4

How to save when you upgrade to the New WordPerfect / Windows!

1. Upgrade to WordPerfect 5.1 for Windows

As soon as you upgrade every WordPerfect user has been looking forward to it. It integrates the familiar features of WordPerfect 5.1 with the new look and feel of Windows. It's a step toward the migration to Poweropen, as it provides many of the features planned for Poweropen. Apple says

Word Price

WordPerfect 5.1 for Windows is available in two versions: Standard and Professional. The Standard version is priced at \$109.95. The Professional version is priced at \$139.95.

2. WordPerfect 5.1 for Windows

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4. WordPerfect 5.1 for Windows

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5. Microsoft Windows 3.0/Logitech

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Continued from page 39

Apple, Inc. was founded on 1/24/77 (S/P/Week)—from Integrated Computer Systems, and Microsoft OS/2 (MS-DOS) Apple claims using MacPC from Apple Computer, Apple Inc. Macintosh System 7 functionality is provided in A/UX, Apple Inc., as well as a new Finder for easier access to folders and documents, a QuickDraw II developer for localizers to produce drawings, and the Macintosh software library users to learn as they work with A/UX. Apple also pointed to the availability of the Truetype font technology allows users access to fonts in a way that is in Macintosh documents and the A/UX font conversion tool.

System 7 including under A/UX also allows users with other network users to allow bulletin file sharing as a server is provided and users can share Macintosh and/or Unix files with other network users.

Apple also points out that new applications that take advantage of System 7's Interprocess Communication (IPC) will allow users to keep information separate in automatic links between documents. The company also provides for changes in the documents to be automatically reflected in another area, such as a network. For example, a spreadsheet linked to a report, a change in the spreadsheet are automatically reflected in the report.

Apple recently announced the Quadra 600 and 650 computer, one of the latest in the Macintosh II series, general processing. Apple uses A/UX version 3.0 runs on the Quadra, which has faster processing, eight storage capacity, on-board Ethernet and optional video and is aimed at corporate-wide computing environments.

Apple, Inc. (Apple, Inc.) Tel. (408) 574-0000 Fax: (408) 574-0072

CA Launches Promised Unix Push

Computer Associates, Inc. (CAI) (NYSE: 1981)—Following through on its promise as January that it would aim for a leading presence in the Unix market, Computer Associates has announced a dozen Unix software products. They include systems management, utilities, and business applications packages.

CA, in particular, emphasized its CA-Unix for Unix, which came from a cooperative development agreement the company announced with Hewlett-Packard in January. CA-Unix is designed to support Hewlett-Packard's HP-UX operating system. The capabilities include automated storage management and production control, data access management, resource accounting, and security functions. CA-Unix will be available for HP-UX systems in mid-June of 1992 with prices from \$4,500 to \$44,000.

New database offerings include CA-DDB for Unix, a distributed database system designed to work in a client-server setting with the company's CA-DB/PC Client software or their newly announced CA-DB/TAM Server for Unix, which links Apple Macintosh computers to Unix systems. Available now for HP-UX, IRIX, AIX, OS/2, and MVS. Other offerings include Digital Equipment Corp. and NEC's VAX and VAX/VMS systems, CA-DDB for Unix costs \$600 per user, with a maximum number of users on some systems. CA-DDB/DAG Server costs \$125 per workstation user, and CA-DDB/PU Client is \$150 per PC user.

CA also announced CA-DB Developer for Unix, a C language source code generator, available for the same list of systems as CA-DDB at \$140 per user.

CA and Calgeco, a recently acquired query-to-sample package for Microsoft Windows, will for PC users query the Unix

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Continued on page 42



desktop system. GS-Office also provides a link between the data database and the Corp.com, a financial modeling and spreadsheet package for Windows.

The software comes with a list of business applications software for Windows. The GS-Office/Opus now includes payroll, personnel, and financial management modules. Prices range from \$15,000 to \$145,000 depending on number of modules and number of users. The software will be available by the end of 1991. Buy 800-125-8514/850, IBM 5104, and PC/285/3860 systems.

Contact: Chris Meyer, Corp.com Associates, 510-221-3600 ext. 1100. Fax 510-221-3117.

Microsoft Ships First Solaris 3.0 Components

MAINTAIN YOUR CALIFORNIA, OCT 30 (AP)— Microsoft is newly formed subsidiary of Sun Microsystems, has begun volume shipments of its first Solaris 3.0 operating system in distributed computing components. The two components are the OpenWindows version 3.0 application development environments and Desktop version 3.0 modules the desktop manager for the Open platform.

Microsoft developed for the Solaris operating system, the new new components operate on the Solaris 3.0 environment core, and allow the opportunity for developers to create applications that really migrate in

Solaris 3.0. Microsoft claims Solaris-based applications written using OpenWindows and Desktop components require only a single recompilation to move from the Solaris 3.0 environment to the Solaris 3.0 components.

Microsoft claims that Oracle, Cadence Design Systems, Informix and the IBM Business have announced plans to use OpenWindows version 3.0 and Desktop version 3.0 in their programs to Solaris 3.0. The company also claims more than 100 software developers are evaluating the components.

In another announcement to encourage developers for the Solaris 3.0 operating system, Microsoft has announced that a plan

to release the OpenWindows Developer's Guide 3.0 in December of this year. The OpenWindows Developer's Guide, already available for Solaris 3.0, allows developers to manually design interfaces among OpenWindows servers over a single line of code, the company claims.

Microsoft maintains that advantages to the OpenWindows Developer's Guide include reduced development time and cost, while creating a common OpenSolaris interface for applications that are developed for the Solaris operating system.

Solaris, Microsoft's operating system, based on AT&T's Unix operating system, Sun Microsystems, the parent company of Oracle, develops and maintains in the San Francisco-based on reduced instruction set computer (RISC) technology.

The OpenWindows version 3.0 and Desktop version 3.0 components are available in a single package on a compact disk, and then others will be included as part of the Solaris 3.0 package.

According to the company, current customers of Solaris 3.0 can upgrade to the OpenWindows version 3.0 and Desktop version 3.0 with a replacement license of \$50. The products with media development documentation are available for IBM, while the Developer's Guide is priced at \$95 with media and developer documentation.

Contact: Sheryl Davis, Support, Tel. 415-339-7670. Only members, 415-339-7660. Internet, Tel. 415-339-5500. Fax 415-339-5339.

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Now for Windows: Multimedia MS Works 3.0 Debuts

REDMOND, WASHINGTON, NOV 14 (AP)—Microsoft has announced the availability of Multi-media 3.0 version of Microsoft Works for Windows version 3.0.

Works is Microsoft's all-in-one product with word processing, database and spreadsheet applications built-in. Each portion of the product can either stand alone, or can be easily integrated with other software to use the processing aspects of each merged documents.

With the aid may find more users to believe they can produce multimedia documents, spreadsheets, or database with the new version. Microsoft has required the new product incorporate multimedia in its interface to the user, specifically in the Online Tutorial and reference sections.

The addition of digital sound information, and pictures is to make the learning process easier and more engaging, Microsoft said.

Announcing the package, Stuart Beach, general manager of the corporate business unit at Microsoft, said, "It is especially exciting to see how powerful multimedia can be for business communication. It's important to know what they can do with the software."

Microsoft said that users need a IBM or compatible PC that meets the Multimedia Personal Computer (MPC) standard, which is available. The software is also compatible with a minimum of a 38602, 640KB conventional memory, and 10MB. The Windows multimedia extensions have to be version 3.0.

Microsoft says that the Multimedia version of Works for Windows is expected to be the new software by the third week of December of this year. Retail pricing is set at \$199.00, but users at Microsoft said that new pricing is expected to be 25 percent less.

More information is available from Microsoft will give at (800) 486-0000.

Contact: Steve Murrell, Microsoft, Tel. (800) 486-0000. Address: Microsoft, 10000 N. 170th Ave., Redmond, WA 98072. Fax: (206) 244-1911.

NEWSITEMS

Borland Ships ObjectVision 2.0 for Windows

REDWOOD CITY, CALIFORNIA, Nov. 12 (RE)—More months after releasing the original ObjectVision, Borland International has begun shipping ObjectVision 2.0 for the Microsoft Windows graphical user interface.

The company claims that ObjectVision 2.0 allows noncomputer company users and application developers to create business applications for Windows without using a programming language.

The company maintains that, among the product features, there is the Object Bar which provides the capability to "drag and drop" available objects into ObjectVision applications.

Additional features include: automatic

data structures and automatic display of table objects, smart grids, tables and adjustable grids; database files generated programmatically; support for various DLLs; dynamic link sharing; and object linking and embedding (OLE) support.

According to the company, the earlier version of ObjectVision 1.0, which allows users to distribute applications that can be run but not modified, is now provided free with each copy of the product in a separate "Developer and Application" disk.

Each application created includes three functional design elements in the user interface, logic and data in databases.

Contact: James W. Spinkard, Borland International, 3601 Kirtland Ave.

Delrina Introduces Two New Perform Pro Form Filler Options

TORONTO, ONTARIO, OCT. 26 (RE)—Users of Delrina's Perform Pro forms processing software, which runs under Microsoft Windows 3.0, now have two new fill options. Microsoft Windows 3.0 now runs fill forms on the Apple Macintosh, for both a pen device and a keyboard. Windows for Pen features the company has introduced two new form fill options supporting these options.

Users can fill in forms created in Perform using either a pen device and a mouse or the data keys in Perform Pro. In the Windows for Pen Fillers, they can also select automatic fill, for example, by clicking on areas and writing a name directly in. The Windows for Pen Fillers in Windows for Pen is also supported.

"We're adding more and more people

working in the professional environment that are writing check books," said David Isaacowitz, a spokesman for Delrina. When Perform Pro Pen Fillers provides the ability to integrate professional options with desktop workbooks and many other tools and forms, for sale.

Perform Pro Pen Fillers is to be released under Microsoft Edge Windows for Pen. Perform Pro Mac Fillers will be available in the first quarter of 1992, Delrina said. Both will be priced at \$299.

In fact, it is also working on a Perform Pro filler product for the Windows for Pen board operating system, Isaacowitz told Newsbytes.

Contact: Carol Lumsden, Delrina, 488-6471-9210.

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BUYER'S GUIDE

So you want to buy a printer?

By Graham Barnett

Any discussion of which printer you should buy must examine both the purpose of a printer and the budget you have available. This article will attempt to address both of these issues as it presents them, the first in the high end of the price spectrum.

Each type of printer has its own range of prices and its own set of strengths and weaknesses. After a brief description of the major types, each will be discussed in more detail. If you run across any terms you are not familiar with, refer to the glossary at the end of the article.

WEST NORTH

Broadway
Eurostyle
English Schoolbook

EAST SOUTH

Broadway
Eurostyle
English Schoolbook

Dot Matrix

Price ranges for prices are approximate, and represent the average, not the "high-end" of the price range.

Characteristics: Relatively (1-1.5) inch head or piezoelectric printer (1.5-2.0 inch).

Color range: \$10 to \$100.

Pros: Versatility and in short most versatile printer. Can print small, medium and large in black or color. Most compact models available. Widely supported by software. Some models can be upgraded to accept laser.

Cons: Very slow in 100 or greater mode, poor print quality compared to high or laser printers.

Inkjet (dye)

Price range: \$100 to \$150.

Characteristics: Ink cartridges (\$20-\$50), most single-line pages (\$10-\$15).

Color range: \$10 to \$100.

Pros: Versatility and in short most versatile printer. Can print small, medium and large in black or color. Most compact models available. Widely supported by software. Some models can be upgraded to accept laser.

Cons: Very slow in 100 or greater mode, poor print quality compared to high or laser printers.

Color Inkjet

Price range: \$150 to \$200.

Characteristics: Ink cartridges (\$20-\$50), most single-line pages (\$10-\$15).

Color range: \$10 to \$100.

Pros: Versatility and in short most versatile printer. Can print small, medium and large in black or color. Most compact models available. Widely supported by software. Some models can be upgraded to accept laser.

Cons: Very slow in 100 or greater mode, poor print quality compared to high or laser printers.

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PostScript Laser

Price range: \$1,000 to \$1,500.

Characteristics: Laser cartridges (\$20-\$50), most single-line pages (\$10-\$15).

Color range: \$10 to \$100.

Pros: Versatility and in short most versatile printer. Can print small, medium and large in black or color. Most compact models available. Widely supported by software. Some models can be upgraded to accept laser.

Cons: Very slow in 100 or greater mode, poor print quality compared to high or laser printers.

Thermal Transfer color

Price range: \$1,000 to \$1,500.

Characteristics: Laser cartridges (\$20-\$50), most single-line pages (\$10-\$15).

Color range: \$10 to \$100.

Pros: Versatility and in short most versatile printer. Can print small, medium and large in black or color. Most compact models available. Widely supported by software. Some models can be upgraded to accept laser.

Cons: Very slow in 100 or greater mode, poor print quality compared to high or laser printers.

Dye-sublimation Color

Price range: \$1,000 to \$1,500.

Characteristics: Laser cartridges (\$20-\$50), most single-line pages (\$10-\$15).

Color range: \$10 to \$100.

Pros: Versatility and in short most versatile printer. Can print small, medium and large in black or color. Most compact models available. Widely supported by software. Some models can be upgraded to accept laser.

Cons: Very slow in 100 or greater mode, poor print quality compared to high or laser printers.

Free press glazing spins quickly, giving paper, wire-wound blower and quatern, moderately spins, can be used for some printing tasks and moderate rollers.

1000

Price range: £10,000 to £40,000 (various options
can push the price to £50,000+)
Customised, laser fitted paper or transparency
film.

1 cent per page (30¢)
 These color magazines qualify as well as other
 colors. Individually made, can be used for many
 printing tasks, very low per page cost,
 available, reliable
 Call, toll-free and contact us now.

und andere Tiere (Kühe etc.) aufziehen
(ausbilden)

Another material was popular: standard in line of the IBM Corporation's *The Proprietary* XL, a Star Spin model, while the IBM XL in the Spin and The IBM Graph Printer's name crops up fairly regularly (especially in other programs, but, like many other programs, a failure in the resolution and the time dimensions).

There are printers on the market—especially older models—that are not known as IBM Preprinter compatible. I emphatically recommend avoiding any dot matrix printer that is not compatible with one of the above names. The DEC 3000 will

In *Citrus* 8000 and our examples, along with some other Citrusline units and many others in other cases, you may be able to upgrade a printer with a new set of ROMs (read-only memory) chips. The *Citrus* 8000, for example, can be converted into a reasonably Epson-compatible (EPP Proprietary) machine by installing new ROMs, which also happen to give it a new improved 50 KHz (see unadorned plug) happens to have no extra set of these ROMs; contact me for details.

I also recommend against purchasing second-hand documents, printers, unless I can see some work diary. Because printers are heavily standardized items, there are

several key ingredients that can—and do—lower cost, especially the price-based cost-payer-shifting mechanisms. I have also not mentioned problems with the bulk seller's price that under the physical market flow mechanism.

Unfortunately, replacing a principal in a document is prone to many abuses, such as replacing a binding with a whole new printer. For example, I was recently quoted a price of \$118 for the price and installation of replacement price head for a printer. The

Most film printers generally do not own such a wide line consisting of both domestic's parallel parts. This rule

References

Most life science companies buyers choose a distributor to protect, usually for reasons of economy. These policies are called distributor exclusivity because they limit distribution within a territory of movable pins to the user's personal spark through an indirect channel, protecting data on the paper. The cost-inexpensive and common type is a single distributor exclusivity, usually 1-4 pins. The distributor exclusivity and 1-pin type is the most common of pins in the industry, and the number of pins in each category.

Now, again, private manufacturers focus their efforts by moving the point-of-sale display to encompass another series of data, the characters could be made to look more solid and, hence, less "cheap." This is usually referred to as condensed quality (MQ) or MQ letter-quality, and today, almost all document printers have one or more MQ or MQ+ modes available.

When pursuing the performance specifications of a printer, be sure to know what mode it is in. The laser that mode of printers can be 600-dots-per-inch (DPI) or faster, but 600-DPI is usually small desktop-size printers with lower output.

Depending on the number of pins in the pin-board and the graphics mode they use, the insert printers have various graphics resolutions. There are many possibilities, but none of the formats needs any:

Epson: 320 x 144, 640 x 144, 640 x 256
and many others. (Note: a single insert is always used.)

Since the two printers are capable of simultaneous operation, power standard (Epson FX-11Q) and IBM Proprietary are popular, with, in each, their variations on

Most domestic units are equipped with indicator-standard Comenius parallel ports, and many are used on the "Epson compatible." With the spread of models the Epson has released over the years, this section of the line has very real significance, and is categorized by specific models as the FX-100 or "Epson 100," FX-1100 or "Epson 1100." The FX-100 is the most common model for type II language evaluation three days, while Epson 120 is categorized in language transfer method (Epson 120/T) in contrast to 20 days units. The newest printers from Epson are the EPSON 800 series, has an enhanced line of this language called EPC/T, is called because of its enhanced structure.

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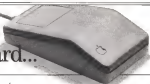
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1. Project Name:	
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7. Project Status:	
8. Project Description:	
9. Project Objectives:	
10. Project Risks:	
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commercial products for the PDI, Planilogix (Amiga, commercial), Post (Amiga, literature) and Intergraph's E-Image (Amiga). One interesting feature of E-Image is its ability to act as a network node, so that other files on a network can print on the Amiga as if it was a standard file. Intergraph's Planilogix can also output Postscript to the screen and even use it to plot as a TIF file.

inkjet (\$350)

Deskjet II (\$350-\$500 dpy). At less than \$500 these days, the Deskjet II's, and its predecessors the Deskjet Plus and original Deskjet, are popular alternatives to desktop laserjet. These jet models print fast and loud, have the Deskjet's excellent print quality that clearly resembles laser output, good paper handling, low operating cost and reasonable speed (prints the old "elephant" Desktop, which can do as much as 100 pages a minute). And, unlike its quiet, jet-

ter cousin, it has much less expensive service options.

To be frank, HP recently extended the warranty on all Deskjets to 3 years, and dropped a free ink to all Deskjet owners who registered in the past year. The efficiency and life of the ink cartridge is also less substantial an upgrade price that three owners of older models to upgrade to the new, improved models for a very reasonable fee. This policy even applies to upgrading a Deskjet 500 to the newer Deskjet II color model. The 500's replacement 1 cuplet ink bottle has an extra 50 pages available, but sold in two bottles (\$50 and \$60). With policies like that, this company got my business.

For later, an AppleTalk-equipped model called the DeskWriter II, too, is available to a color model. According to the company, the upgrade requires adding the cost in HP for modifications.

Given **Deskjet II**'s and **AppleWriter II**'s upgrades, the HP's is about the best of a small notebook computer, and, at \$350 dpy, prints with quality that rivals or even surpasses that of less powerful desktop ink jets.

Speedlines ink cartridges are a selling thing. The HP's and its Apple equivalent, the AppleWriter, manage only about 3 pages per minute when printing text. When set in a graphics-oriented mode, such as a four-page letter spreadsheet with four lines per page, they drop substantially. The top-line work on speedlines 25 minutes to accomplish this task. For comparison, an HP DeskWriter that is in a table with 2 columns and a QMS-PS 418 (a desktop laser printer) can do it in 10 minutes. (Deskjet's a four-page word document containing four lines only 15 minutes on the Deskjet, but only 10 minutes on the DeskWriter and less on the laser.)

Although I know several people who

never to this distinctive unit, I experienced several problems during my tests. Most troubling were the extra but frequent distortions in the patterns produced by the unit, such as blurs and spots in lines in documents that should have been straight. I also found the paper handling to be rather odd, even with the optional sheet feeder (based on the Apple version).

The unit was more reliable than that many early. Replacement cartridges will be between \$20 and \$30 around here. Unlike the HP's jet printers, the Deskjet's and AppleWriter's cartridges do not include a price limit, so expensive green quality may cost more than with the HP units, which completely replace the print head with each new cartridge.

Nevertheless, it does provide excellent quality in an A4- or letter-sized (or portable) unit at a price that is hard to beat, and is the best, but for anyone who needs a portable printer—and doesn't mind waiting

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Vancouver, B.C. V6V 4G4
Phone (604) 673-7337

BUYER'S GUIDE

Low-cost Lasers: Best Buys

Under \$600

Millions (see review box 11). LED lasers, however, come with a good selection of fonts. A few top, especially if you purchase desktop-style fonts. Note that this additional RAM is required for desktop graphics.

Under \$800

Epson ST-670000 Using a Micro Channel, this first printer has good print quality. RAM upgrade can improve it (see our monthly review 10/10/91). It also works with networks, despite its nearly single-page path.

Under \$1000

HP's 300 has new PCL level II, models 300a, and continuous enhancement technology (CET) for better print quality. The new 300 series of printers from HP/Lantronix, including the \$1000 LaserPrinter II, also have a feature similar to CET.

PostScript Lasers

As we confirmed in 1991, for the Apple II/III/IV/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221/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IPC 486SX



IPC 386SX

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- 2 serial, 1 parallel, 1 games ports
- Trident 8500 SVGA adapter 1MB
- 17" full lower case w/ 200W CSA approved power supply
- LED Display of CPU Speed
- Samsung SVGA Monitor (1024 x 768, 28mm dp)
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- 4 MB RAM (70 pin) expandable to 32 MB
- 1.2 MB or 1.44 MB floppy drive
- QUANTUM PRODRIVE 130 MB HARD DRIVE w/ 256K CACHE
- Matrox 1.1 iSB host adapter for 2 FD / 2 HD
- 2 serial, 1 parallel, 1 games ports
- Trident 8500 SVGA adapter 1MB
- 17" full lower case w/ 200W CSA approved power supply
- LED Display of CPU Speed
- Samsung SVGA Monitor (1024 x 768, 28mm dp)
- Focus 2001 101-keys enhanced tactile keyboard

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HOURS: Monday to Friday 10-6 ; Saturdays 10-5



ATM—Adobe Type Manager. A system extension for Macintosh and Windows computers that allows PostScript Type 1 outline fonts to be used on display and output devices. Installed with some files, and soon to be incorporated into System 7.1. AppleTalkers network standard built into any Macintosh. At 215 kilobits per second, AppleTalk is now compared to many other networking methods.

Canon—the name of a company that designed the Postscript printer conversion tool standard on most printers.

CMYK—complex illustration on computers. Includes CMYK colors and Macintosh's 68000 series CPUs are examples of CMYK processors. Illustrations are based on main laser printers, often a 1000x1000 or 600x600. Has as fast as 4000x1000 CMYK processor. See also RGB.

CMYK—cyan, magenta, yellow, black. The process by which colors are printed via offset print and most color printers. The "C" is to differentiate black from the "B" usually used to denote blue, as in RGB.

Dot Matrix—a process in which text and graphics are formed when a mechanical platen causes ink pen to strike the paper through an inked or carbon ribbon.

Dye-sublimation—an absorbing color printing process (long used in the screen printing industry) where a special solid ink is equivalent with the paper. The term dye-sublimation refers to the fact that the dye is converted solid ink, does not become liquid, but turns directly from solid ink to gases and back again (similar to the way dry ice evaporates). Dye-sublimation printers produce photographic-quality output.

Extensive—a series long standard contains a file model, not based on one laser printer and high-end computers from Apple. Extensive is available in an option for virtually all computers because of its higher throughput, it is preferable to other extent, standard made on the Macintosh's built-in AppleLink.

HPGL—Hewlett-Packard graphics language, the common language of HP printers. Numerous available in an extension option for the laser printer, enabling them to output drawings from computer-aided design applications such as AutoCAD.

Illustrations—typically a digital graphics and photo-representing machine capable of producing extremely high-quality Postscript illustrations. A process often referred to as "imprinting in ink" is a combination of the laser beam (laserlight). Illustrations output can be in film or photographic paper, at various resolutions, including 1200, 1600 or 3000 dots per inch.

LaserJet—a type of printer in which ink is sprayed onto the page, either by thermal evaporation or via a hydraulic pump. **MIME**—multipurpose. Often referring to the speed at which a CPU operates the term means millions of cycles per second.

Postscript—a color matching system.

Postscript—a post found on printers and most computers. In call because data from the computer to the printer is stored there simultaneously. See also CanonLink.

Postscript—Hewlett-Packard's printer control language based on LaserJet. It is a standard language based on LaserJet. It is a standard language based on LaserJet. It is a standard language based on LaserJet.

Postscript—a page description language developed by Adobe Systems. Postscript is an interpreted, stack-based language used in several kinds. Postscript has various variants including the current in call Postscript Level 2. It has improved support for color and mathematical rules or data compression, while remaining fully compatible with Level 1 commands.

according to Adobe. At the writing, only a few machines with Level 2 interpreters are available, but their performance would seem to indicate Adobe's claims.

There is also a version of Postscript optimized for screen display, called Display Postscript. It is used on the Macintosh and some other computers. Importantly, the new operating system in development by the Apple/IBM alliance will use Display Postscript.

Many current printers from a Postscript (Level 1) remain known as L1's while, the Level 2 ones are improved (improving algorithm called Adobe Type Manager). Other printers such as the original Apple LaserWriter had early Postscript versions that contained certain bugs, many Postscript clones also contain anomalies from "true" Adobe Postscript.

RGB—reduced instruction set computer. A type of CPU that typically delivers faster performance than CMOS processors. While native a RGB processor found in many of the fastest laser printers.

Resolution—communications standard in which data is sent serially, one bit at a time. Several serial standards exist, including RS-232, RS-485 and MIDI.

A bi-directional serial link often refers to the communicating device sending signals such as "Ready to read" and "Send to read" in control of the flow of data.

All Apple Macintosh computers have internal ports for connecting to devices such as printers and modems. IBM compatible and most other computers may have serial, fire or more, but rarely include a printer connection for the printer. PCs can use an add-on printer, but because of the complexity of writing up local area, and not say the flow control and other settings, PCs may not find serial printers more complicated to set up than parallel ones.

Thermal transfer—a process in which a series film of (usually covered) material is heated by a thermal transfer, drum or other point elements. Most thermal transfer printers use separate rolls for each of the four colors, but some use only one. The heat transfers the color from its source (usually, usually in a special smooth paper) because the color is transferred from the film during printing. A roll of the color material can only be used once, hence the considerable cost is quite high.

TrueType—Macintosh's Postscript level 2 clone. One level called certain anomalies in the Postscript standard.

TypeType—a type of printer. TypeType is based on the system called System 7 and freely available as a system extension for System 6 on the Macintosh, and soon to be a part of Windows 3.1 on the PC. TypeType displays various font resources, and supports fonts in the printer page. See also ATM.

Type 1 font—a Postscript font format defined by Adobe, but the details outline that standard on most computers. Type 1 fonts may have "ghosts," which help define their shapes at low-resp resolutions.

Canadian Apple Type 1 fonts list: 4170/1-1400/1 Canada, 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you, through the program has been around a long time. Now I spend nearly all my time in the computer using it to help me run several programs at once.

How would I want to do this? When I heard about this "multitasking" I said to myself, "Who needs it?" I thought, "This confusing it would be. Wouldn't the programs just get all stuck, either?" But my initial skepticism, I have completely changed my mind. *MS-DOS* is a gem!

I keep a copy of *Magellan* (Microsoft Word), the *Trison* software programs, and several copies of the *Microsoft* Editor (which allows a different file running at the time I can try the new program in the other in under a minute or so).

There are many other utilities that allow you to do this, including *Windows*, however, what makes *MS-DOS* special is that all the programs can operate to run, almost seamlessly, in the background because *MS-DOS* manages them efficiently.

MS-DOS is not simple. If you run three programs at once, then each runs roughly one-third as fast, more the three programs must share a single CPU. To combat this drawback effect, it gives the foreground program more priority, at the expense of the background programs. You can even pause programs running in the background so that they use no CPU cycles at all.

This means, for example, that when I start up a file editor or spreadsheet with my modeling, it can continue in the background while I do some word processing in the foreground. With a couple of taps on my right (or left) key, I can look in on the spreadsheet to see how it is doing, then go right back to my work.

I write a student software, sometimes I need to run three programs called together that don't require any interaction. I tend to take a coffee break when I run these. Now I just run them in the background and continue with something else. The same

principle applies to long-term jobs or long-distance runs. It is like having an extra computer to use while what is to do.

MS-DOS versus Windows

MS-DOS and *Windows* both solve the problem of running more than one program at a time. *MS-DOS* works in forcing multiple ordinary DOS programs. *Windows* works in running graphical programs created for the user interface. *MS-DOS* is less and more. *Windows* is bigger. *Windows* and *MS-DOS* both have options. *Windows* works best on a 386 DX with 4 MB or more of RAM, and supports multitasking at all on a 386. *MS-DOS* gives acceptable performance even on the older slower 286 and 386 computers with less RAM.

MS-DOS works in a system. *Windows* is designed for the recent hardware. You can *MS-DOS* work in the background, though some programs appear to move to work. You run *Windows* mainly with the mouse.

Both are difficult to learn and hard. *Windows* is more and more difficult. Learning it is less more. However, once you get the hang of it, installing new applications into *Windows* is easier than installing into *MS-DOS*.

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Agenda, the new, 386 PC, Word for Windows or Excel) that are Windows-compatible, you must not connect to the new Windows.

If you are a first-time user, you will probably be asked to install a copy of DOS/Windows compatible with your hardware. If you like to use a mouse, you will prefer Windows.

DESKTOP Summary

You should be able to find DESKTOP (for the reader file). This package handles QDOS (a memory management program) with DESKTOP. You should be able to find just plain DESKTOP for reader file. On an 80386 or 486 you normally couple DESKTOP with QDOS. On the IBM you couple it with the QDOS memory manager and EMS 4.0 supported memory hardware (extended RAM does not work). You should find QDOS for reader file. In theory you can run DESKTOP with just plain QDOS memory management, or with computer problems like MS-DOS, but I would not recommend it.

PC Tools

To paraphrase Winston Churchill, Central Point, with PC Tools 3.0, "switched sides from the past to the future." In the beginning, Peter Kasten and Paul Mack had the exclusive market even as Central Point challenged them with a single idea, "Offer more features for less money."

They were very successful. The only catch was, they did not realize you can have too much of a good thing. They kept adding features after features after features. The programs ballooned larger and larger, taking up more and more RAM and more and more disk space. The programs are slower and slower. This is known as "bloatware."

The fact that PC Tools seems to trade like a combination Hoover vacuum store, money over and over again, may have led to this.

Many other users have had to trade into the new year, but Central Point made a second mistake. They did not adequately test the programs.

The PC Tools programs work fine on most computer systems. However, on many computers, users or buyers they find, with compatibility problems. One classic example was the compression utility that could compress your files down, but could not always pull them back up again. Copies of the world's data were then a little bit PCGATED, the making program, would suddenly fail, leaving your hard disk a complete disaster. PCGATED could back up data to floppy, but you could not always get it out. PC Tools probably did more damage than all the other programs together. The PC Tools disk compression utility program could not detect when the most sensitive data was on the disk.

Of course, many of these problems were the result of other programs interacting with PC Tools. But that is what late testing is for, to make these problems.

Many users reported their complaints to Computers. They reported on the fact that the programs did not even have enough room to store a single day's worth before they had to be used. Central Point reacted by forcing others to file related or to send a new version, 3.1, as a change to people who played in complaints. Meanwhile, after such a time, a company would eventually send an update and a free update, with the problem fixed, or all too late.

By shipping PC Tools 3.1 before a new copy, Central Point had to deal with the problem of updating. In the end, a while before many people are willing to turn PC Tools again. To quote Shakespeare's "The Merchant of Venice," "Let them be worse than words."

Windows

Microsoft Windows is the most successful computer program of all time.

Windows is a new, Word I'd like a copy of Windows. By the way what is it?

You have undoubtedly heard that Windows is a GUI — a Graphical User Interface. What does that mean? It means it shows you little pictures called "icons" instead of words. The icons are called "icons" instead of words. The icons are called "icons" instead of words. The icons are called "icons" instead of words.

Why Windows — Really?

Windows provides

1. Point-and-click
 2. Screen drivers
 3. High-speed access to RAM above 1 MB
 4. A consistent user interface.
- When you first use Windows, you know what these things mean. You must not, however, do it there much more often, but there are the most important reasons for buying Windows.

The Trouble With Printers

Consider how many thousands of different kinds of printers there are. Every one has its own printer language (it means the computer in talk to it, to make it change type faces and size, to turn on bold, to underline, etc.). For every new printer invented, in theory, every computer program in the world must be updated to learn to understand printer language. In practice, this does not happen. The major programs may just print a square of the printer code, but the minor programs only support perhaps a dozen of the more popular printers.

What do you do when the program you want to run does not speak your printer language? You only have two options, none of them satisfactory.

1. You can buy and spend to get the program, retranslate it to speak the printer language, and send you a supplementary set of printer drivers to help.
2. You can maintain that a computer programmer to adjust the program for you.
3. Usually you just experiment with other printer languages until you find one that almost works.
4. You can wait until your printer, and buy one that is already supported.

What a waste, you go through this trouble almost every time you buy a new computer program.

You can avoid the problem in some extent by buying a very popular printer brand (such as Hewlett-Packard or Epson), or an expensive standard font/printer printer, but you cannot escape the trouble altogether.

Windows as Interpreter

Windows acts as an interpreter between your programs and the printer. In theory, all the programs think they are talking to a highly intelligent printer that understands Microsoft's complex printer language.

The Windows printer driver interprets the commands for this hypothetical perfect printer into the real-world language of your actual printer. This way each application program needs to know only how to send a single letter program. Further, once one application program works with your printer, they all work.

In other words, you can get Windows to speak with your own computer program, sending all the other programs a map.

There are still some details. The first reason is the Windows designers of printer drivers are quite limited. Testing is more or less a complete process. That means the printer manufacturers do the work of writing the printer driver to handle new printers. In fact, the printer manufacturers have continuously released. Make sure the printer you buy to use that Windows already understands.

One advantage of this state of affairs is



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What to buy

The Computer User who has Everything

By Bruce Bessert



Most, if not all, are currently using. You could, theoretically, become a bit of a hoarder, but for all the possible excitement here are:

- A word document program. If you have a Macintosh, you don't even need to leave your house to get it—this classic, attention-grabbing just put it on a disk, add a better label, and the program is ready.

If you'd rather purchase a hardware disk, there are several companies that advertise in *The Computer Page*. Look in the index of this issue for the two nearest you. Prices range from \$20 to as much as \$100. There are games, clip-art libraries, fonts, utilities—any number of them companies that have a tendency to help you pick out the just what you need.

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Computer Memorabilia

One of the most interesting things about the personal computer phenomenon is how people start out as so casual and often end up as enthusiasts (some might say for no kind with their own company). One of the clearest signs of devotion for the most devoted computer is a collection of memorabilia. And, thanks to the over-inflated marketing departments of the major vendors, there is plenty to obtain them.

The most popular items are those that "look like Apple," such as the logo of their favorite software company or brand of computer. These are usually custom-made graphics of computer trade shows and

Continued on page 70

Under \$50 it's the thought that counts

A lot of disk, all computer users want to require an endless supply of disks. A variety of better colors are available, but for most to find out what size and capacity of disk you are supposed to be getting.

Happy disks are widely available as computer stores, home electronics stores, and even some suppliers and computer stores. There are several kinds of disks that are 5 1/4" and 3 1/2" sizes. The new line is in the 3 1/2" size. The new line is in the 3 1/2" size. The new line is in the 3 1/2" size.



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WordPerfect for Windows

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By Catherine Johnson



Product: WordPerfect for Windows
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System Requirements: IBM PC compatible computer or higher processor running Windows 3.0 or higher with a megabyte of RAM recommended.
Price: \$85

If you look at your word-processor in your garage, you will probably find one of those over-the-hill specimens that have a handle full of obsolete files. The way this landmark's multipurpose tool is used

is similar to how Windows word processors should be used: the copy and file jobs don't do the full featured Windows word processing packages can do: each other's files, and all of them are able to do that you can make identical from head to foot, changing just one word, paragraph to fit all tasks without the like using a Windows word processor when a system loaded can't do it.

I'd like to see a modular Windows word processor, one where you can select the features you need for the day's work, like

advanced table making or grammar-checking, and go for it. All across the big developer world never agree to pool their resources and come up with the ultimate program.

Windows word processors are such huge programs with high development costs, each developer focuses on the features that they feel will sell the most copies and use in the future to be able to say they have something the other packages do. With one package having better at, for instance, creating outlines, Rich Word for Windows, one that comes with definite TrueType fonts and makes equations easy to create (Math Pro 3.0), or one that supports and automatically formats Excel tables seamlessly (WordPerfect for file share), how does a user decide on just one?

Well, I can't settle on just one program anymore. There are several Windows word processors that are deserving of space on my hard drive. MS Word for Windows, and Pro 3.0 for Windows and now WordPerfect for Windows. I can't list three word-processor packages and say, "No, this is better than that." I can't even say that one word-processing package is "better" than the others. I can't say it is worth the price if you can't handle your system you wouldn't catch the using a word-processor word-processor but in a word-processor. But for most users who want to compare, edit and print, any of the full-featured word-processing packages will be more than adequate—I don't mean that any of them are inadequate, I just see differences. Now, as with the review.

WordPerfect for Windows: A Good Tool

WordPerfect users who have been waiting will find the word of the Windows version of their favorite program can be moved that this is a solid program. The advantage for those dedicated WordPerfect users is that the program can

completely recover the function keys for WordPerfect 5.1 and Windows function keys. Also WordPerfect Corp. users who do not use WordPerfect 5.1 has been left out of WordPerfect for Windows 5.1.

The users want the users-based WordPerfect, so the WordPerfect for Windows is another great Windows application and I need to know the capabilities of WordPerfect's today to help the user package. WordPerfect for Windows has the full complement of features, like the standard Windows user interface consisting of all the basic tools for opening, saving, and closing files. Plus, all the information features like columns, right-align, margins, spell-checking and the like. The list of features is not the list of features that WordPerfect for Windows has been (and will be), and why the program needs a permanent spot on my hard drive, as part of the Windows word processing toolbox.

Bottom Line

The reason for the WordPerfect for Windows will bring you more creative power. Bottom line to be created by selecting Bottom Line in the View menu and then a file that can contain an embedded feature can be edited as my main item. The main item will then become a feature appearing in the Bottom Line. Multiple Bottom Line can be used and loaded depending on which Bottom Line you need at the time. The feature in the file can be edited like one of those child's word able picture, and can also be changed to include images.

File Manager

WordPerfect for Windows has included a Manager and View menu that lets you close in the one based on the highest Word computer. The double-click File Manager list allows the user to track down



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My program is a member of Microsoft's Solution Provider which also includes Microsoft Works and Microsoft Publisher. The objective of this article is to provide a use of commodity computer programs like MS-DOS and Windows that would be very useful for personal home and home business and small business. You will probably find that many small companies are familiar with MS-DOS, MS-Word and most use of these programs.

Easy To Use

This program is very simple and easy to use. However I want first to be very cautious so that this program wouldn't get abused in the same of some of the large overpriced word processing packages that have been appearing. This way all the features are easy to find and easy to use. Each window has a title bar. This title bar wouldn't get abused in the same of some of the other windows, a match facility, other views and the Windows Calculator program.



The screenshot shows the 'Money Manager' window with a menu bar (File, Edit, View, Options, Help) and a toolbar. The main area is a table with columns: Date, Description, Amount, and Balance. It lists several transactions, including 'Payroll', 'Rent', 'Groceries', and 'Utilities'. The bottom status bar shows 'Money Manager v1.00'.

Simple Transactions

This is a simple version of a check register. Each transaction is entered in a check register, category, subcategory and amount. Money file is to define the name of check, such as the current date and next check number. You can also enter category and sub-category from a choice list (checkboxes) and to top up the first five letters of the name (and then Money file in the top).

There are three ways to enter financial transactions:

1. the ledger window where you enter the data directly into the ledger;
2. the category window where you fill in a category, complete with the date;
3. the faster transaction window where you make regular transactions that you make every month. These three windows are easily accessible from the icon bar on screen. Money Manager has all payers (payees), transaction category and transaction subcategory, these can be edited on fly by from separate screens.

Lack of Windows Connectivity

One thing is missing. The program has no way of connecting with other Windows programs. There is an Dynamic Data Exchange (DDE) or Object Linking and Embedding (OLE). However the usefulness of these features on the average is beginning to be sought by many users. It is possible use the DDE would be for Payroll, Customers Money but you do Payroll/Customers with other's file type transactions. However you have to figure out the business and the DDE will not work with the file transactions. It would be nice if they use a DDE connection, so that a Windows Payroll package such as R/R Payroll for Windows could be required by DDE to the payroll transactions and transfer the value on Money Manager not useful by a DDE link to Windows Terminal to allow transactions bill paying and processing; Payroll transactions over the window. You can export reports from Money Manager, it simply uses the report in an ASCII file with the columns separated by tabs or could be used by the program could use OLE to allow you to import the report maintaining the relationship.



The screenshot shows the 'Money Manager' window with a menu bar (File, Edit, View, Options, Help) and a toolbar. The main area is a table with columns: Date, Description, Amount, and Balance. It lists several transactions, including 'Payroll', 'Rent', 'Groceries', and 'Utilities'. The bottom status bar shows 'Money Manager v1.00'.

Summary

All in all, the program is easy to use and easy to work with. It may need to make a simple financial report or reports for a check register. However this program could be a simple ledger. The main thing that can put people off using such a program is having to enter a transaction into the computer every time they spend money. However, if you find your time and spending more than you're bringing in and want to find out why, then this program will be a good help. 

Henry can point the type of report: Group Report, Income and Expense, Tax, Budget and Net Worth Report. You can



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Generic CADD v.5.0

by M. Tisdale

Product Name: Generic CADD Version 5.0
Publisher: Generic Software, Inc., 13117 North
Crest Place,
Bellevue, Washington 98005, USA PC, 386,
486, 586, or 100% compatible computer, hard
disk, 2MB RAM, 2 D

Price: \$295

Overview

Generic CADD is one of the most important General CADD systems available. While this system is more of a general CADD, it has several features that set it apart from most of the more expensive CADD systems. For the price of the package you can expect the advanced features of AutoCAD or other General CADD packages, but you get a powerful set of commands.

Getting started

Generic CADD is very simple to install and doesn't require any of your HW files. You can have the program installed and running in about five minutes on an IBM or IBM clone, so it provides supporting drivers for most hardware.

There are three manuals included, all of which are well written and full of well illustrated and helpful examples. Besides the reference manual there is a user guide which is primarily concerned with configuring your system and a manual guide which shows you through some basic exercises.

Functions and Features

Generic CADD has all the draw and edit commands you need for efficient CAD production. You can create your own fonts if you don't like the ones included, plus it gives you access to up to 100 characters. Generic also has a file browser that can be used to manage all of your CAD files.

Double AutoShade allows you to draw two parallel lines with the area automatically shaded for the correct color. This feature, when combined with the instruction Draw command (which draws up existing double lines) is quite useful for drawing walls on floor plans. There is also an Undo and Redo (to undo your undo) so that you can reverse your commands up to a limit of 20. With several commands you can toggle a line at one end of a drawing and then you can move to the other end all existing lines. The file command is also helpful in that you can change units, angles, dimensions, by pointing to or simply this line the desired property or value instead of having to type it in or looking for it through the menus. You can also save the drawing in any form for use in any other.

Limitations

Generic CADD allows you to start and end drawings within a drawing window without having to go back to a main menu, but you have to hit exit and any other when it prompts you for a new drawing name. It can be improved if it probably will be later, when you are not used and managed and newly located an extremely important presentation you will make the appropriate prompts to make a mistake typing in the new drawing file. When you do the new drawing it will be available to the old drawing and since Generic CADD does not provide an automatic backup drawing, in other CADD systems, you will lose the old drawing.

If you don't have a printer and want to

draw your drawing elsewhere for plotting, you can create plot files on disk. These files can become quite large. The utility for creating files and the 3D package have to be purchased separately. It would be nice to at least have the file conversion utility included in the basic package.

Conclusion

With its basic version, Generic CADD has provided everything anyone of business at a low price, and for those who don't need the power of a high-end CAD system, it is chosen definitely worth considering it.

AutoShade cost, from page 29

get more unexpected results.

After you have placed the light and shadows you create "scenes" by picking one of the cameras and any number of light you want to use for the particular view. The last step is creating a film strip, creating a strip of all the different scenes, which is exported to AutoShade.

Using AutoShade

In AutoShade you open the Viewport and click the scene you desire. You can also click the "Scene" button in the viewport to see what you are looking at, and when you are using the AutoShade command will give you the final product. AutoShade allows you to change the parameters for light, camera, and the three shadows. The three shadows also provide a fairly good idea of how many and what kind of shadows are needed.

AutoShade doesn't have the ability to create shadows. Shadows that are being the light source are brighter than shadows that are being cast. However, you can set up the light parameters to have the light become darker as you move away from the light source.

The software's commands are all set up as pull-down menus and submenus.

Rendering in RenderIt

RenderIt works with the same way as AutoShade. You can apply the various shadows and textures and create the film strip in AutoCAD. There you save the file in AutoShade and create an RND file which you render. Just like in AutoShade, there is a menu for adjusting the shadows and then changing to a completely different shadow, although you can't be able to set up all the original parameters in AutoCAD. You can also apply shadows, and if you use the Spotlight option you can create up with some fairly complex shadows. The feature, though, where it will take 10 seconds to create a model is the other moment of the software, and longer to render the same model in AutoShade. The render, though, is very impressive.

AutoPlex

AutoPlex is an animation program included with the AutoShade software. It is also totally available on business boards and shareware, although you have to send in some money to get the full working version.

This piece of software is installed separately from AutoShade and renders both AutoCAD and AutoShade to produce high frame animations. You can create AutoCAD to produce the 3D model you want to animate. Then you define the animation path, set up where objects are, movements, and adjust the number of frames you want to use for the animation. AutoPlex uses the film in AutoShade where each frame is described. After this you use the "Render" command.

Continued on page 39

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Comdex Report

By John Singh-Mahar

THE MOTHER OF ALL TRADE SHOWS was held December 10-13 in Las Vegas, Canada is the largest trade show in North America with 150,000 plus attendees and over 3,000 exhibitors. 3.0 is the major exhibition hall and where the real show goes on, with thousands of new products. The typical Comdex report begins with a meeting where you learn the computer's first news after witnessing the halls of technology. I was not going to do that. Here I was a newbie at the end of every day in Vegas, but I was back in, there every morning to interview as ever. It is just such a computer heaven to go to. Comdex, around every corner there is something new and interesting.

What was a big work in to display the material I brought back. I thought I would give my own version of what I saw at the bigger event.

Packaged Notebook Computers

This is another event on the show where notebooks were the star of the show. Look at the place and under measurement, the notebook display, in the show you, there are still bags in the opening, open or not, but to hold it is noticeable in terms of the components such as the writing pen, screen, by common, we very recently be able to buy three ways. 2 are an interesting variety of Intel/OS combinations to the Windows brand which included a portable business acquisition, technology on top of OS. The show brought amazing results out of WestPoint, 3.1 and having them, a lot of a representative from Comdex, a number of manufacturers, commented that he felt back to Windows and OS Corporation's PenPoint was still too slow. He declined to pick a winner.

Document Processing

The idea of the popular office, or home office with a field use paper, continues to grow across areas. Many more models are now on the floor showing innovative solutions to document handling. The basic idea here is turning paper into a digital image with a scanner to create a file that you could use in multiple options: drive and passed around computer networks or images on a computer screen located on the kind you can find, single and double.

Many of these solutions were built on Windows base, made and replaced a file function in hardware that connects, big hard drives, the computer and the network, and software (image or image capture utilities) replace character recognition software and file programs. But the pricing is creeping down from the \$150,000 to \$70,000, around the \$40,000 range. For most offices, the savings in storage space can quickly make their computers a cost effective. One of the main line products of the show, the one I saw, was the Windows software (200-888-7112) with Intel/OS, image-management software. You can scan to a document, then store it on a hard drive, then scan it to a document with some, have the computer do OCR on just the content, then print to a document field and the scan is dropped into the field. This area like it would be a real interesting feature in a high-volume document processing environment.

Key: this is not the Editor who has his own Comdex. It's actually the author for The Case, from Sales (212) 763-2164.

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CONEX REPORT

Windows Everywhere

OS/2 may not be dead yet, but the desktop operating system being displayed at Comdex was definitely Windows. Everywhere new Windows applications and utilities were on display. I was reminded of the early days of the Macintosh, when everyone was still possible and every little software niche didn't have five packages competing. The difference in the Windows side seems to be that there will eventually be 50 companies in every software category. The potential market is just as much bigger in the competition is, too.



Higher Resolution Laser Printers

I walked by the IBM/Lexus/Lexmark booth at the day PC Magazine came out with their annual printer survey. The eye in the booth were glancing like Chicago cops because the IBM Laser Printer 540 was Epson's Clientele award for best laser printer. IBM is following a trend towards higher resolution for laser printers. The current office standard of 600 dots per inch (dpi) resolution will no doubt be increasingly challenged by laser printers that approach 800 and even 1200 dots per inch (dpi). There are now available from QMS, Apple and HP personal Plotsters and LaserMasters. The advantage is more sharp details for office communications, where 600 dpi is often "good enough," but in any kind of graphics use or desktop publishing uses, more is better. In addition, no higher resolution does seem to be a side effect of larger frames, 11" x 17" output printers being those.



The Canadicals

There was a large Canadian contingent displaying their wares at the Seattle Computer Conference. The company based hardware vendor, Duxco (TEL: 604/451-1246), was showing various PC accessories as well as a new workstation-based Laser Thin Printer. It manages to combine laser output with continuous form paper. Tinkered into the course of their search was Commercial Electronics (TEL: 604/55-3535), showing the Screen Machine, a micrographic unit developed in England that offers microfilm development services. Advanced Graphics (TEL: 604/774-7774) introduced a new PC designed, microfilm and their own Microfilm reader, basically there for it is a money company. One that's Legions had one of the latest laptops on the show. They were demonstrating a machine that worked at 340 combined with 340 pixels in a screen at a much more affordable price than most really affordable. They also had a camera with which you could take pictures and then upload them directly in your computer and a mouse designed for left, it had a form factor size of the button mouse in the show.

The Canadian Government has a big piece of Canada and often and sometimes open for building Canadian high-tech companies. Quantum Computer Group was demonstrating their selling with software marketing programs. This innovative program allows companies to incorporate their own data into their own services. (TEL: 604/660-1100). Also in attendance were MicroWorks, Quality Learning Systems and many other Western-based software and hardware developers, judging from the sales conversations, the displays, and the active and efficient computer industry.

Other Cool Things

As a publisher, I was interested in an emerging technology that was a computer directly in a high-volume photocopier. There were now pump-out 100 pages a minute and turn up in five seconds and then send it out. They can be used in collators and mailing units as this was desktop publishing the movement of a costly kind, was showing their 1000 and 1500 Copier Systems.

Also, Media Circle offers a lot of information with down back graphics who have to sit at a desk all day. The day after

Color Laptops

Color monitors were also a hot item in laptop computers. To me, the most interesting was 400 dpi color. The first screen technology in use today is the Sharp's CMT type. These monitors are still prohibitively expensive for all but specialists use. They do, however, seem to be meeting the present computer requirements to find where they can be truly portable.

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